



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/034266 A3

(51) International Patent Classification⁷: G06F 13/368

(21) International Application Number:
PCT/EP2003/050672

(22) International Filing Date:
30 September 2003 (30.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0223686.7 10 October 2002 (10.10.2002) GB

(71) Applicant (for all designated States except US): NOKIA CORPORATION [FI/FT]; Keilalahdentie 4, FIN-02150 Espoo (FI).

(72) Inventor; and

(75) **Inventor/Applicant (for US only):** LAIHO, Kimmo
[FI/FI]; Ojarinne 24, FIN-20810 Turku (FI).

(74) **Agents:** DERRY, Paul et al.; Venner Shipley LLP, 20 Little Britain, London EC1A 7DH (GB).

(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU.

CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

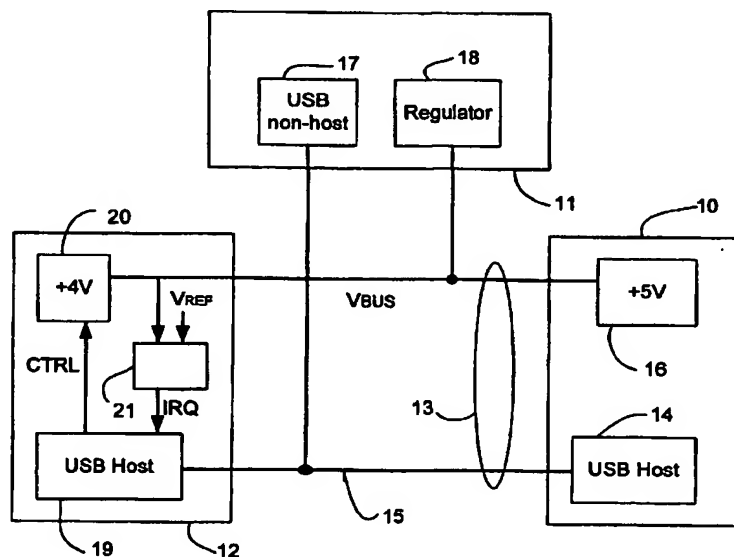
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
4 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DEVICE OPERABLE AS BOTH A HOST AND A NON-HOST (I.E. DUAL-MODE DEVICE)



(57) Abstract: An accessory device (12), such as a DVB-T receiver is operable as a USB host to a mobile telephone (11) to which it is connected via a USB bus (13). When acting as a host, the accessory device (12) provides a 4V supply voltage on V_{BUS} to the mobile telephone, which includes a regulator (18) regulating the voltage to 3.3 Volts. When a host device (PC) is also connected to the USB bus (13), the voltage on V_{BUS} rises, and this is detected by a comparator (21). In response, the accessory device (12) sends a USB reset command sends its USB lines tri-state, and ceases to supply V_{BUS} , thereby relinquishing host status. Loss of the PC (10) is detected by detecting a low voltage on V_{BUS} , following which the accessory device reasserts host status.

WO 2004/034266 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/50672

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F13/368

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CYPRESS SEMICONDUCTOR CORP.: "USB ON-THE-GO PROTOCOL" WWW.USB.ORG, [Online] 26 February 2002 (2002-02-26), XP002283463 Retrieved from the Internet: URL: http://web.archive.org/web/20040603235613/http://www.usb.org/data/developers/otg/presentations/london/OTG_protocol.pdf [retrieved on 2004-06-03] page 4 - page 70	1-6,14, 15,17,19
Y	-----	16
X	"On-The-Go supplement to the USB 2.0 specification, Revision 1.0" UNIVERSAL SERIAL BUS (USB), XX, XX, 18 December 2001 (2001-12-18), pages 1-66,1, XP002952944	1-6,14, 15,17,19
Y	page 3 - page 39 -----	16
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

23 June 2004

Date of mailing of the international search report

14/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Ryan, M

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP 03/50672

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>EP 1 229 747 A (MITSUBISHI) 7 August 2002 (2002-08-07) page 6 - page 8</p> <p>-----</p>	16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/50672

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-6, 19

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6,19

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
power is supplied to a voltage supply line from the device operating as a host device
whereby
non-host devices lacking an autonomous power supply, eg. portable ones, may connected to the bus.

1.1. claims: 14-17

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the bus is a USB bus

2. claim: 7

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device is arranged for causing at least some lines of the port to be forced tristate on detecting the presence of another host
whereby
each transfer is guaranteed a well-defined logic level and destruction of the respective busline and associated electronics is avoided.

3. claim: 8

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device includes means to send a reset command via the bus on detecting the presence of another host
whereby
all bus connected devices are returned to a known state.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

4. claims: 9-10

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device has means for detecting the loss of the other host and in response thereto (the device) takes over as host whereby
the bus always has a device acting as host

5. claims: 11,18

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device has a first and second port whereby
the device can be connected to more than one other device

6. claim: 12

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device is a battery pack whereby
the device can operate independently of the mains

7. claim: 13

Device connected to a bus via a port, the device operating as a host device, if no other host device is detected and relinquishing host status on detection of another host device,
wherein
the device includes a digital video broadcast receiver whereby
digital television can be watched

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/50672

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 1229747	A	07-08-2002	JP	2002232548 A		16-08-2002
			CN	1370029 A		18-09-2002
			EP	1229747 A2		07-08-2002
			US	2002137506 A1		26-09-2002

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/034266 A3

(51) International Patent Classification⁷: **G06F 13/368**

(74) Agents: **DERRY, Paul et al.**; Venner Shipley LLP, 20 Little Britain, London EC1A 7DH (GB).

(21) International Application Number:
PCT/EP2003/050672

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:
30 September 2003 (30.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0223686.7 10 October 2002 (10.10.2002) GB

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **NOKIA CORPORATION** [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).

(72) Inventor; and

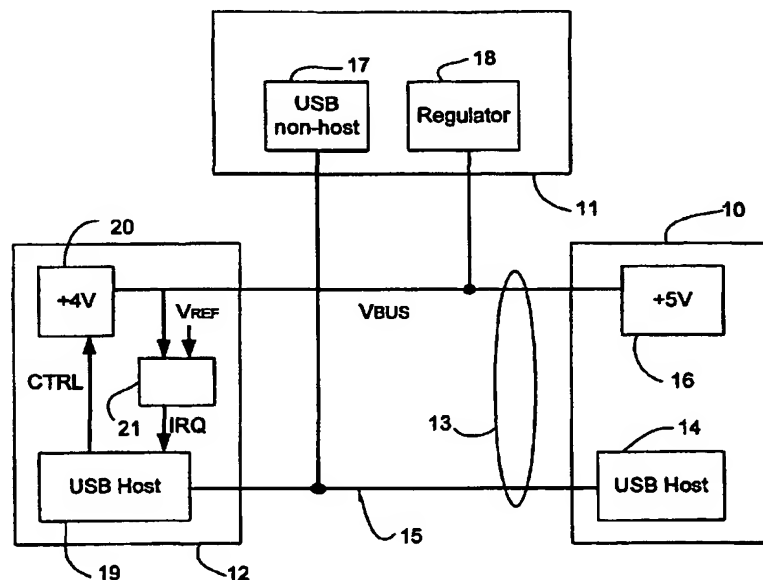
(75) Inventor/Applicant (*for US only*): **LAIHO, Kimmo** [FI/FI]; Ojarinne 24, FIN-20810 Turku (FI).

Published:

— with international search report

[Continued on next page]

(54) Title: DEVICE OPERABLE AS BOTH A HOST AND A NON-HOST (I.E. DUAL-MODE DEVICE)



(57) Abstract: An accessory device (12), such as a DVB-T receiver is operable as a USB host to a mobile telephone (11) to which it is connected via a USB bus (13). When acting as a host, the accessory device (12) provides a 4V supply voltage on V_{BUS} to the mobile telephone, which includes a regulator (18) regulating the voltage to 3.3 Volts. When a host device (PC) is also connected to the USB bus (13), the voltage on V_{BUS} rises, and this is detected by a comparator (21). In response, the accessory device (12) sends a USB reset command sends its USB lines tri-state, and ceases to supply V_{BUS} , thereby relinquishing host status. Loss of the PC (10) is detected by detecting a low voltage on V_{BUS} , following which the accessory device reassumes host status.



(88) Date of publication of the international search report:
4 November 2004

(48) Date of publication of this corrected version:
16 December 2004

(15) Information about Correction:
see PCT Gazette No. 51/2004 of 16 December 2004, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.